

G 45/9



GLACIER NATIONAL PARK

August 1989

Summary • Draft Transportation Plan / Environmental Assessment

I 29.2!

READER
FICHE

best copy available

INTRODUCTION

A transportation plan for Glacier National Park is being developed to provide alternative strategies for dealing with traffic and transportation issues related to the culturally significant Going-to-the-Sun Road and some secondary roads and turnouts within Glacier National Park. Primary issues include cultural and natural resource preservation, major repair needs, design limitations, and safety hazards on Going-to-the-Sun Road and secondary roads and turnouts; traffic loads and parking demands during peak periods; and changing visitor needs and interests concerning travel to, from, and within the park.

Alternatives presented in the plan that address these issues include proposed actions for road rehabilitation, implementation of a public transit system, and traffic management. Treatments for Packers Roost and Camas roads and the Sun Point intersection are also presented along with proposals for 130 turnouts on Going-to-the-Sun Road and a historic quarry operation.

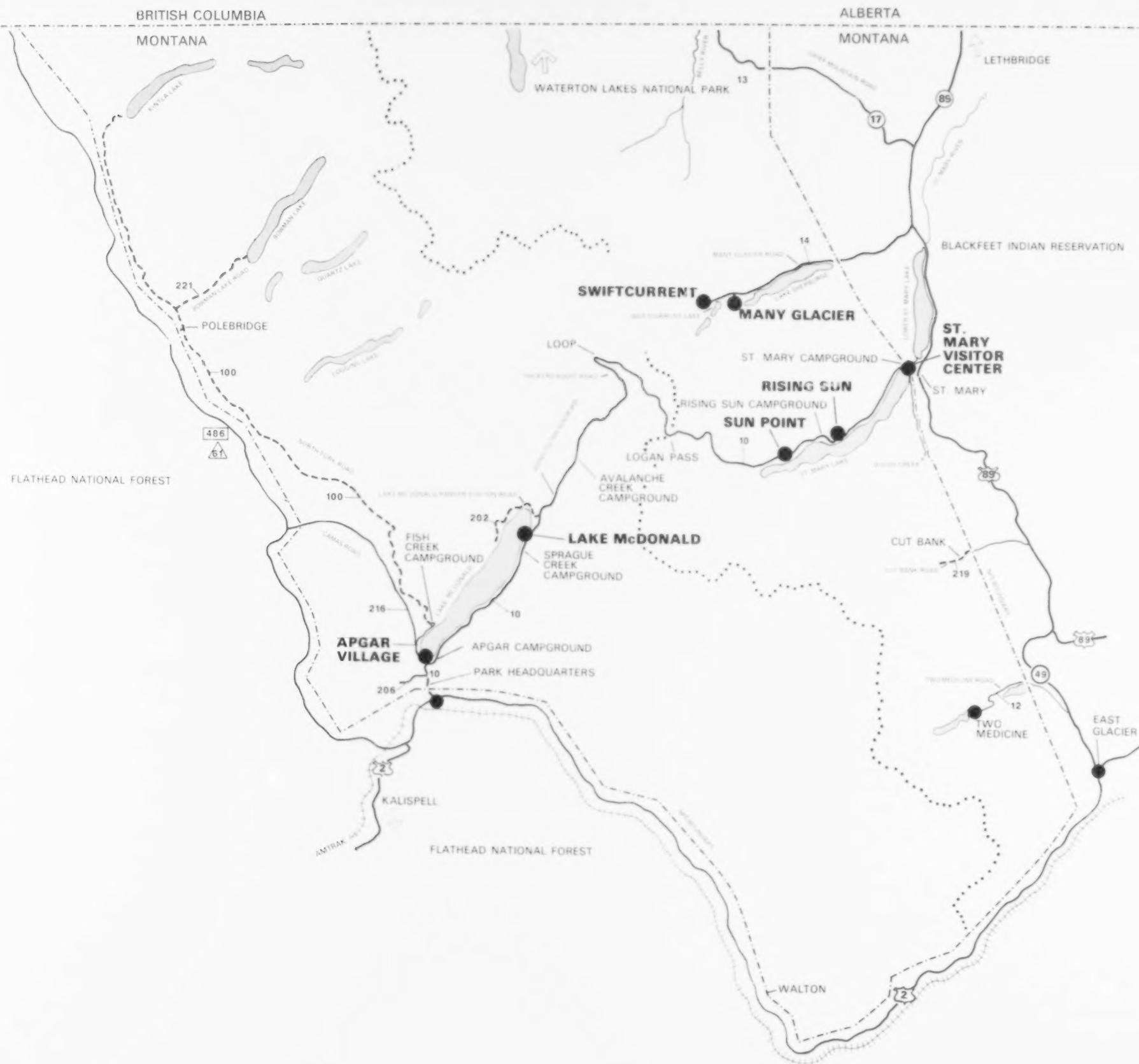
All proposed actions have been assessed for their beneficial and adverse effects on visitor use and the environment and for their cumulative impacts.

Only sections 3 through 8 of Going-to-the-Sun Road were analyzed for condition, visitor safety and pleasure, and historic value. Sections 1 and 2 were not included in the assessment because they were analyzed in separate documents earlier. Section 1 from the west entrance to the T intersection of the Camas and Going-to-the-Sun roads was improved in 1983. Section 2 (.55 mile east of the Camas Road intersection to the intersection of the Lake McDonald ranger station) was considered separately in 1985 because immediate funding was available for that portion.

Alternatives to other major park roads (Many Glacier Road, Two Medicine Road, Chief Mountain Highway) were not presented in the transportation plan because further geotechnical and planning studies are required before formulation of specific road options. Road options for the North Fork area will be analyzed in the development concept planning effort currently underway. The North Fork Road will not be changed in character or condition. Because the Cut Bank Road is in generally good condition, no actions other than normal maintenance are proposed during this planning effort.

Bicycles are a popular means of conveyance on Going-to-the-Sun Road and on other park roadways. The level of bicycle use on park roads does not comprise an appreciable percentage of the total traffic volume. However, there is currently a lack of accurate data on the exact volume and distribution of bicycle use in the park. Therefore, a systematic and comprehensive analysis of bicycle use will be conducted for the park, including a count of bicycle use levels on major park roadways and a survey of bicyclists to determine their potential needs. It will be conducted at the earliest possible opportunity (in consideration of available funding and staff). After completion of the analysis, a bicycle management plan will be developed for the park and will become part of the final plan.

An extensive traffic and road analysis was completed on visitor use volumes and patterns, types of vehicles used, bus schedules, and costs for purposes of this transportation study. These factors were all considered when choosing a preferred alternative. Please refer to the *Draft Transportation Plan/Environmental Assessment* (August 1989) for a complete description of this analysis.



- MAJOR DEVELOPED AREAS
- - - - - PARK BOUNDARY
- CONTINENTAL DIVIDE
- + + + + + AMTRAK
- PAVED ROADS
- - - - - UNPAVED ROADS
- 10 ROUTE OR ROAD NUMBERS



PARK GENERAL
 GLACIER NATIONAL PARK / MONTANA
 UNITED STATES DEPARTMENT OF THE INTERIOR - NATIONAL PARK SERVICE
 2112 501124 ©
 1987

ISSUES

Road Conditions

Going-to-the-Sun Road is in need of repair. It was constructed in the 1920s and 1930s and has not been updated, except for some maintenance and asphalt overlay work. Pavement deterioration, cracking or failing edges, moisture problems, inadequate base materials, road breakage, and profile and cross-section distortion are all factors that contribute to poor road conditions. In addition, repeated patching has increased maintenance costs and diminished visitor enjoyment.

The Logan Pass section of Going-to-the-Sun Road is too narrow (18 to 23 feet), with some rock outcroppings protruding into the driving lanes. Sections of stone parapets need repair or replacement. Portions of the roadway, drainage structures, and roadway prism need repair or reconstruction. In some portions, the shoulder is inadequate and erosion is continuing to reduce the shoulder width.

Turnouts on Going-to-the-Sun Road are often unsafe because of regrowth of vegetation on the roadcut since original construction and the fact that turnouts were not planned for large recreational vehicles. Turnouts are on the opposite side of the road from the scenic attraction, some are on blind curves or hills, and there are no lanes for acceleration or deceleration.

Transportation

Going-to-the-Sun Road is being used more each year by all types of vehicles and bicyclists. Safety and comfort are being jeopardized. The roadway is too narrow for large vehicles to pass each other or to pass bicyclists. Many drivers are distracted and cause others to stop or cross traffic. Although additional size restrictions may be necessary, this action would be difficult to initiate without a public transportation system.

The road is intimidating to some visitors who are not comfortable with mountain driving and the amount of traffic sometimes encountered. Many, even those familiar with mountain driving, might prefer a guided bus tour.

Hikers want/need transportation from entrances to trailheads. Other visitors who leave their vehicles in trailhead parking lots must either exit the backcountry miles from their vehicles or return on the same trail.

The park concessioner, Glacier Park, Inc., operates the only park bus system for its overnight guests and group tours, and this setup does not meet the needs of other visitors. Other tour buses that come from various destinations are too large to use the Logan Pass segment of Going-to-the-Sun Road.

Although several types of public transportation are provided to areas outside the park, visitors must still take taxis or limousines or rent cars at the airport or local communities to tour the park. Lodging accommodations, restaurants, and convention centers that have been developed over the past few years have created a need for public transportation between the facilities and to the park. As local public transit systems are developed in the near future, regional and park public transportation systems must be coordinated.

Although a traffic capacity and visual analysis of Going-to-the-Sun Road in August 1984 indicated that the roadway had not yet reached its traffic carrying capacity, traffic was moving 10 to 15 miles per hour below the posted speed limits. The same analysis indicated that at four sites along Going-to-the-Sun Road and in the Appar area, parking demand exceeded the capacity of existing spaces. The Logan Pass parking area, which was the most congested, reached capacity on weekends in July and August from about 10 a.m. to 4:30 p.m.

All road, public transit, and traffic management issues were considered in developing and analyzing alternatives for the transportation plan.

ALTERNATIVES

No-Action Alternative

Under the no-action alternative, present management and travel and use patterns would continue and road rehabilitation would not be done except for routine maintenance, vista clearing, and repairs necessary to reduce safety hazards. Glacier National Park, Inc. would maintain its present bus system and schedule.

Alternative A (Preferred Alternative)

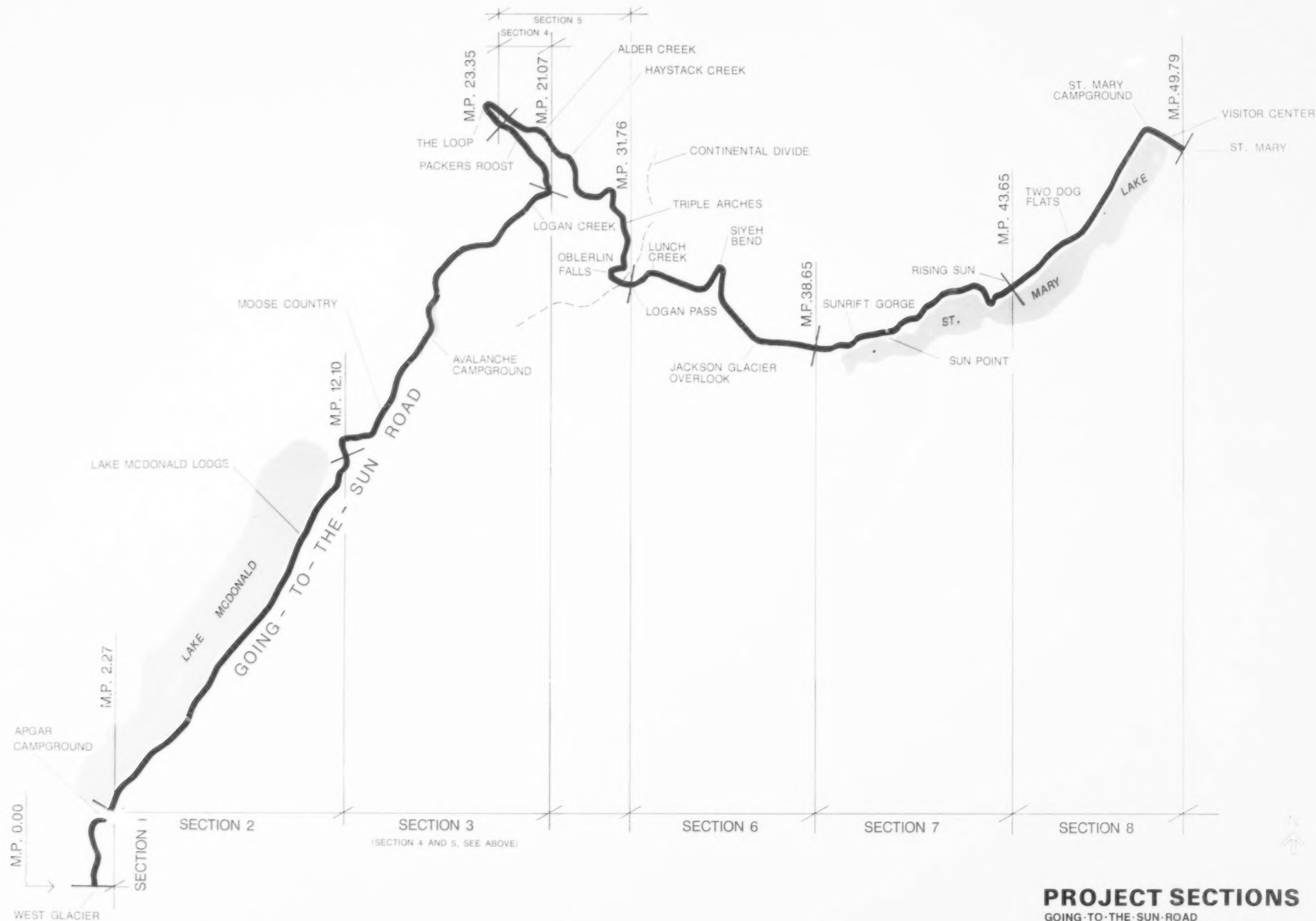
This alternative is preferred by the Park Service because it would retain the historic character of Going-to-the-Sun Road and the traditional driving experience while improving safety and providing options for travel by shuttle bus. Going-to-the-Sun Road would be modified to correct drainage problems, repair parapets, and rehabilitate the road. The average 22-foot road width would be maintained or decreased by approximately 2 feet during rehabilitation, and approximately 10 cu. yds. of rock would be removed. Work on the road and associated structures would be done in conformance with the *Going-to-the-Sun Road, Cultural Resource Plan* (NPS 1989), as amended. Shuttle bus service would be instituted during the peak season, offering rides every two hours from West Glacier and St. Mary. Service to all major facilities, trailheads, and scenic areas would be provided along with parking/staging areas and other facilities to support the service. Management options to reduce traffic on the road during peak hours would be implemented as necessary.

The annual operational cost of the bus system (including initial cost of buses) under this alternative would be approximately \$157,000-\$162,500. Initial costs of support facilities would be about \$326,000 and annual operating costs would be \$36,000.

Alternative B

Under this alternative, there would be few buses added to the system, and no restrictions would be placed on the length of vehicles traveling over Logan Pass. Although there would be the same basic road improvements as those designed for alternative A, the public transportation and traffic management solutions do not respond to the issues as well.

Under alternative B, Going-to-the-Sun Road would be repaired and rehabilitated, and sections 3, 4, and 7 would be widened to 24 feet with 1-foot shoulders where possible. Approximately 985 cu. yds. of rock would be removed in sections 4 and 5. Work on the



PROJECT SECTIONS

GOING TO THE SUN ROAD

GLACIER NATIONAL PARK/MONTANA

UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

1 0 1
MILES

117 40159
DSC JUNE 87

road and associated structures would be done in conformance with the *Going-to-the-Sun Road, Cultural Resource Plan* (NPS 1989), as amended. Shuttle bus service as described in alternative A would be instituted every four hours during the peak season, and parking would be provided. Traffic management options would be implemented as necessary, except that vehicle-length restrictions would not be imposed.

The annual operational cost of the bus system under alternative B (including the purchase of buses) would be about \$81,000 to \$86,000.

Alternative C

Alternative C would involve the most intense alterations of the three action alternatives. The road rehabilitation work would be the same as described under alternative B, except that section 8 would be widened to 24 feet with 1-foot turf shoulders. Under this alternative the proposed shuttle bus service would operate every hour during June and September and every half-hour during July and August, and hourly service from St. Mary to Many Glacier would also be established. Parking and support facilities would be developed. The same traffic management options described in alternative A would be implemented as necessary to reduce traffic congestion during peak hours.

The annual operational cost of the bus system under this alternative (including the purchase of buses) would be approximately \$460,000 to 480,000. Additional operational cost for the St. Mary to Many Glacier route would be about \$105,000 to \$110,000. Initial costs of support facilities would be about \$2,000,000 to \$2,200,000 and annual operating costs would be about \$230,000 to \$250,000.

Please refer to tables 1 and 2 on the following pages for a comparison of road widths by section and for a conceptual comparison of alternatives.

Other Road Modifications

For a complete description of the alternative treatments and the environmental impacts for Packers Roost and Camas roads, the Sun Point intersection, the turnouts on Going-to-the-Sun Road, and the historic quarry, please see the *Draft Transportation Plan/Environmental Assessment* (August 1989).

Table 1: Roadway Width (feet) by Section and Alternative

Alternative	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Rock Removed in 4 and 5
No-Action	22-28*	22	18-21	22-23	21-22	21-22	0
A	20-28	20	18-21	22-23	22	22	10 cu yds
B	24-28	24	18-21	22-23	24	24	985 cu yds
C	24-28	24	18-21	22-23	24	24	985 cu yds

*The 28-foot road width is only in 2 miles of the road rebuilt in 1965.

Table 2: Comparison of Alternatives

	Alternative A (Preferred Alternative)	Alternative B	Alternative C	No-Action
Road Improvements	Rehabilitate road	Rehabilitate road	Rehabilitate road	Repair and patch failing sections only
	Decrease road width in sections 3 and 4, retain existing road width in other sections	Widen road to a minimum of 24 feet with 1-foot stabilized turf shoulders where possible	Same as B	Retain existing width
	Correct drainage problems	Correct drainage problems	Correct drainage problems	No drainage modifications made
	Repair parapets	Repair parapets	Repair parapets	Repair or replace parapets
	Retain existing two-barrel, box culvert at Alder Creek	Replace two-barrel, box culvert at Alder Creek with new structure of similar appearance	Same as B	Same as A
	If feasible, construct new single-span bridge of similar appearance to historic bridge over Divide Creek	If feasible, construct new single-span bridge of similar appearance to historic bridge over Divide Creek	If feasible, construct new single-span bridge of similar appearance to historic bridge over Divide Creek	Retain existing bridge at Divide Creek
	Retain rock protrusions in sections 4 and 5	Widen Cannon Creek Bridge Remove rock protrusions in sections 4 and 5	Remove rock protrusions in sections 4 and 5	Retain rock protrusions in sections 4 and 5
	Implement turnout plan	Implement turnout plan	Implement turnout plan	Retain existing turnouts
	Provide transit service every 2 hours from 6 a.m. to 11 p.m. System capacity would be 9,120 round-trip passengers.	Provide transit service every 4 hours from 7 a.m. to 10 p.m. System capacity would be 4,560 round-trip passengers.	Provide transit service every hour from 6 a.m. to 11 p.m. in June/September. Increase in July/August to every half hour between 9 a.m. and 10 p.m. System capacity would be 25,260 round-trip passengers.	Retain existing concession bus operation
			Provide transportation service from St. Mary to Many Glacier every hour from 8:00 a.m. to 8:30 p.m. System capacity would be 14,820 passengers.	Retain concessioner's bus system or regularly scheduled shuttle bus
Public Transportation				

	Alternative A (Preferred Alternative)	Alternative B	Alternative C	No-Action
Public Transportation				
(cont.)				
Annual operational costs (initial bus cost included)	\$157,000-162,500	\$81,000-86,000	\$460,000-480,000	
Annual operational cost for St. Mary to Mary Glacier route (initial bus cost included)			\$105,000-110,000	
Initial cost of support facilities	\$326,000	No support facilities	\$2,000,000-2,200,000	
Annual cost for support facilities	\$36,200	No support facilities	\$230,000-250,000 (includes St. Mary to Mary Glacier)	
Traffic Management				
	Inform visitors of congestion problems	Inform visitors of congestion problems	Inform visitors of congestion problems	Continue existing management restrictions on vehicle size and length
	Encourage south and east loop trip	Encourage south and east loop trip	Encourage south and east loop trip	
	Promote travel to park by public transportation system	Promote travel to park by public transportation system	Promote travel to park by public transportation system	
	Limit vehicles over Logan Pass	Limit vehicles over Logan Pass	Limit vehicles over Logan Pass	
	Impose 20-foot length restriction during peak times on high-use days	No vehicle length restrictions	Impose 20-foot length restriction during peak times on high-use days	

IMPACTS OF THE ALTERNATIVES

The impacts of the three action alternatives would be generally beneficial. Rehabilitation of Going-to-the-Sun Road and other roads and turnouts would improve safety, ride quality, and traffic conditions while maintaining the road's historic character. Visitors might experience short-term inconveniences because of delays, noise, dust, and fumes during rehabilitation work. There would be a small amount of land disturbance, short-term increases in soil erosion and loss of some vegetation, minimal disturbance to wildlife from construction activities, minor localized siltation of waterways, and temporary increases in construction-related dust and vehicular pollution.

The public transit system proposed under the action alternatives would provide opportunities to view the road for visitors who arrive by means other than private vehicles, those afraid to drive the pass, and those with oversize vehicles. Employees and hikers would be able to travel more easily from one trailhead or developed area to another.

Implementation of the traffic management actions would reduce traffic congestion on Going-to-the-Sun Road. Under the most restrictive traffic management actions, drivers would experience delays while waiting for congestion to clear to the point that they could move through the checkpoints. Use by motorists with vehicles longer than 20 feet could be restricted during peak hours under alternatives A and C.

The following table provides a summary of the impacts on visitor use, the environment, and park operations.

Table 3: Summary of Environmental Consequences

	Alternative A	Alternative B	Alternative C	No Action
Socioeconomic/ Visitor Use	Quality and safety of ride would be improved; fewer maintenance requirements; short-term delays, noise, and dust; visitor transportation system and traffic restrictions would slightly reduce congestion; traffic restrictions would prevent some visitors from experiencing Going-to-the-Sun Road	Same as alternative A, except that a wider paved roadway with 1-foot shoulder would aid drivers and bicyclists and lack of length restrictions may prevent decrease in congestion.	Same as alternative B, except that expanded visitor transportation system might reduce congestion over that described in A and parking demand would increase.	Safety problems and inconvenience to visitors would continue; possible traffic restrictions, road closure, and ultimate road failure could occur; lack of a transportation system could preclude some visitors from traveling over Going-to-the-Sun Road.
Cultural Environment	Potential for disturbance of unknown archeological resources; loss of minor historic roadway qualities and character.	Same as A, except wider road would result in increased potential for disturbing unknown archeological resources; minor impacts would occur on historic alignment of Going-to-the-Sun Road	Same as B	No impacts on known archeological sites would occur; national register qualities of road would not be affected
Natural Environment				
Land disturbance	60 acres* new disturbance	180 acres new disturbance	Same as B	Few new impacts
Bedrock	Irretrievable long-term loss of about 10 cubic yards	Irretrievable loss of about 985 cubic yards	Same as B	No new impacts
Soils and vegetation	Short-term increases in soil erosion; loss of some vegetation in construction areas	Same as A	Same as A	No new impacts
Wildlife	Minor disturbance from construction activities; blasting could affect ungulates	Wider road might increase vehicle/wildlife accident rate	Same as B	Some road kills would continue
Threatened and endangered species	No effect	Same as A	Same as A	No new impacts
Water resources	Minor localized short-term siltation of waterways	Same as A	Same as A	No new impacts

*These estimates are rough estimates and actual acreage disturbed would vary

	Alternative A	Alternative B	Alternative C	No Action
Floodplains and wetlands	No effect	Same as A	Same as A	No new impacts
Air quality	Temporary increases in construction-related dust and vehicular pollution	Same as A	Same as A	No new impacts
Park Operations	Maintenance costs would be lowered; additional housing would be required for transit employees.	Same as A, except no housing would be provided	Same as A, except that a maintenance facility would be constructed and NPS administrative time for oversight of transportation services could be extended	Road maintenance costs would increase due to road deterioration.



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Publication services were provided by the graphics and editorial staffs of the Denver Service Center.
NPS D-153 August 1989